

### 3 Session 1: ESPC Issues

#### DOE Super Energy Savings Performance Contracts

Presenter: Mr. Gordon Drawer. DOE, Federal Energy Management Program (FEMP) Chicago Reg. Office



## DOE Super Energy Savings Performance Contracts

Industry Workshop

October 7, 2003

U.S. Department of Energy  
Federal Energy Management Program  
Chicago Regional Office



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## **FEMP's Mission**

**To reduce the cost and environmental impact of the Federal government by advancing energy efficiency and water conservation, promoting the use of distributed and renewable energy, and improving utility management decisions at Federal sites.**



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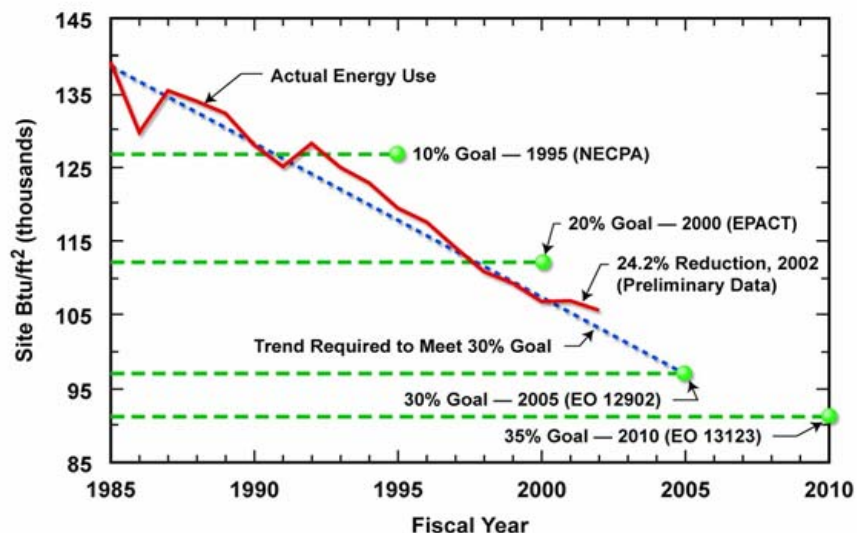
## **The mission involves helping agencies meet their federal energy management goals**

- Reduce energy consumption
  - Standard building energy per square foot to be reduced by 30 percent in 2005 and 35 percent in 2010 relative to 1985
  - Industrial/laboratory energy to be reduced by 20 percent in 2005 and 25 percent in 2010 relative to 1990
- Expand use of renewable energy
  - 2.5% of Federal facility electricity consumption by 2005
  - 2,000 solar energy systems by 2000; 20,000 by 2010
- Implement best management practices for water conservation in 80% of Federal facilities by 2010
- Reduce greenhouse gas emissions 30 percent by 2010 compared to 1990



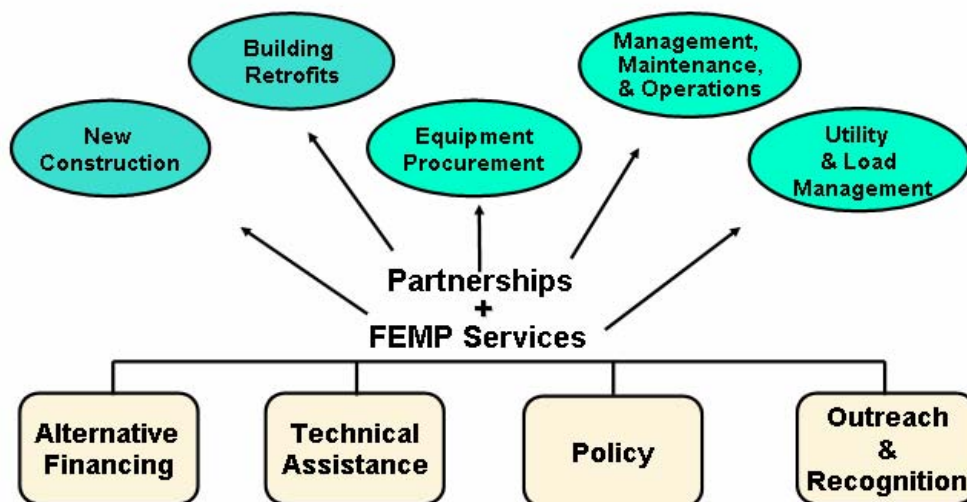
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## Federal agencies are (in aggregate) on track to meet the energy goal for standard buildings



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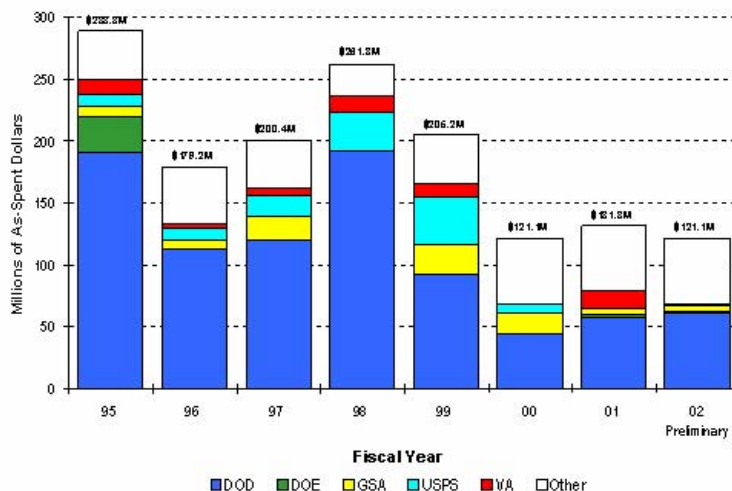
## Targeting Key Opportunities — Building Retrofits





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## Many building retrofits needed to meet goal — Appropriations only cover a fraction of cost

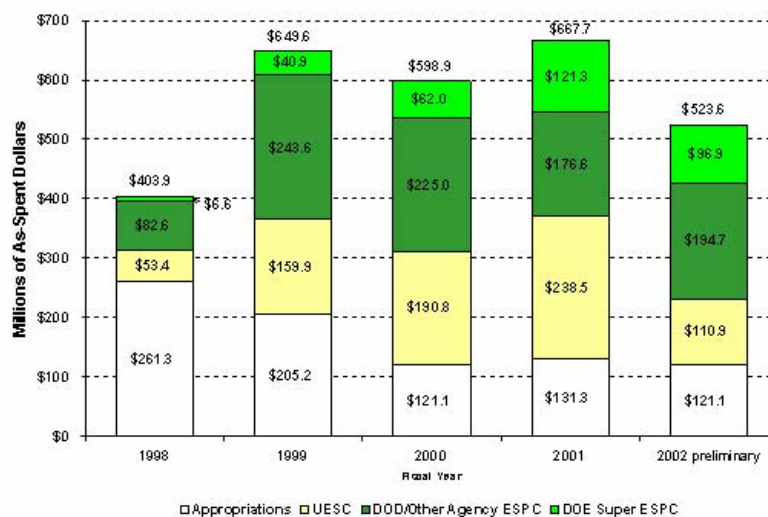


Appropriations for energy efficiency retrofit projects.



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## Alternative financing — especially ESPC — has played a critical role in funding building retrofits

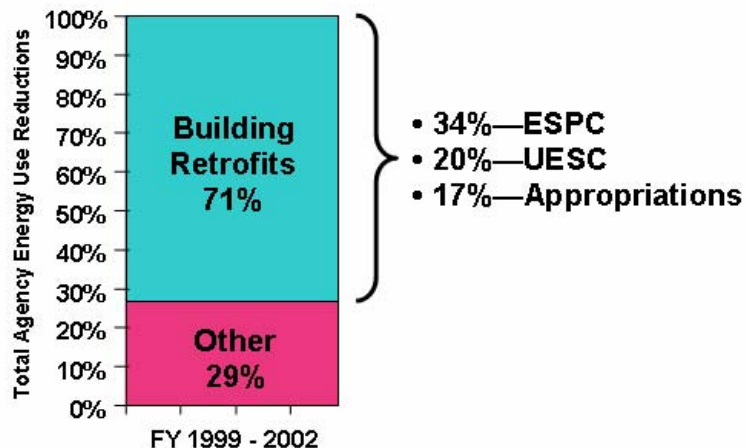


Investment in Energy Efficiency Projects by Funding Source



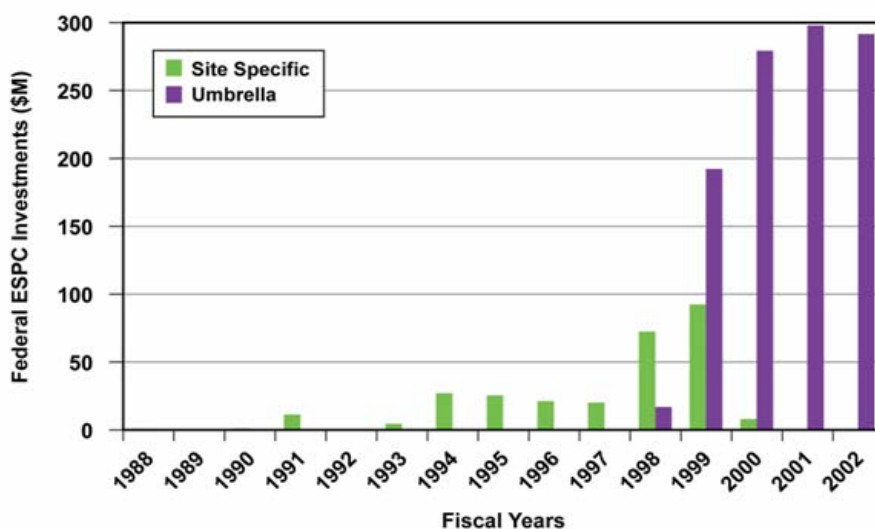
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## ESPC accounts for 1/3<sup>rd</sup> of progress by all agencies toward the goal in the last four years



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## Streamlined umbrella contracts have made ESPCs practical for agencies to use





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## **FEMP's Super ESPC Program - Private Sector Investments To Date**

FY 1998 - \$6.6 M  
FY 1999 - \$40.9 M  
FY 2000 - \$61.9 M  
FY 2001 - \$121.3 M  
FY 2002 - \$96.9 M  
FY 2003 to date - \$113 M



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## **FEMP's Super ESPC Programs**

### **Created to streamline the ESPC procurement process:**

- Regional Super ESPC
- Technology-Specific Super ESPC





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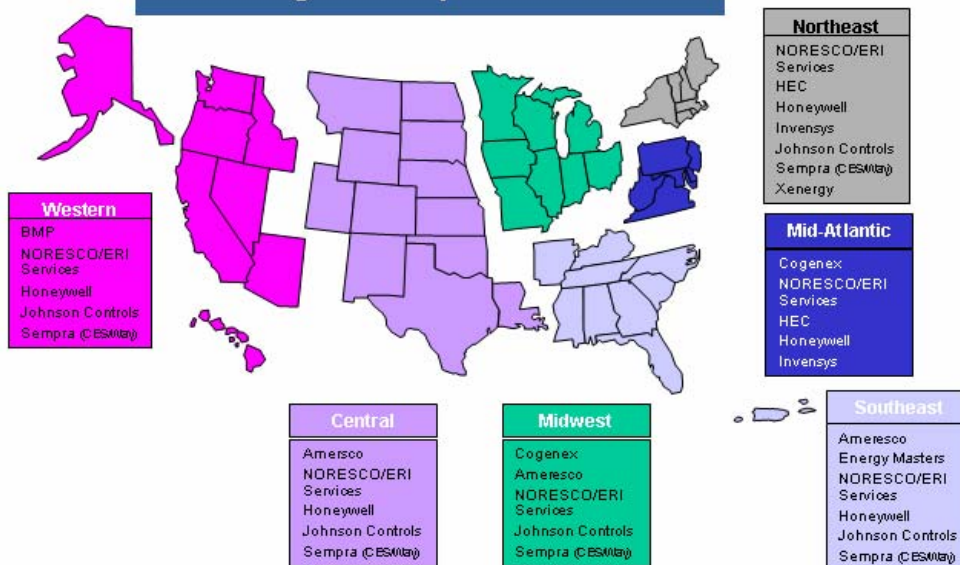
## Regional Super ESPCs (by DOE region)

- Contracts awarded to 5 to 7 ESCOs in each of the 6 DOE geographic regions
- Federal agencies may negotiate delivery orders (DOs) with an approved ESCO without advertising and starting the contracting process from scratch
- FEMP has also developed ESPC DO guidelines and workshops, and fielded technical and contract specialists to assist agency personnel step by step



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### FEMP Regional Super ESPC ESCOs







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## **Technology Specific Super ESPCs (Worldwide)**

- Foster use of “proven but underutilized” technologies
- Tech-specific projects can be bundled with conventional ECMs to improve economics
- FEMP provides the same technical and contract assistance
  - Supported by technology specialists
- Technology areas:
  - Geothermal Heat Pumps (GHP)
  - Photovoltaics (PV)
  - Parabolic Troughs
  - Biomass and Alternative Methane Fuels (BAMF)



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## **An experienced nationwide network of ESPC professionals backs use of Super ESPC**

- Alternative Financing Representatives (AFRs)
  - Operate out of the six DOE Regional Offices
  - Serve as Contracting Officer Representatives (CORs)
- Project Facilitators (PFs)
  - Operate out of three DOE National Labs
  - Serve as guides for agency acquisition teams
- Contracting Officers (COs) and Specialists (CSs)
  - Operate out of the DOE Golden Field Office
  - Serve as consultants to agency COs/CSs



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## FEMP support balances the partnerships between inexperienced agency teams and ESCOs



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## Alternative Financing Representatives (AFRs) in DOE Regional Offices

- Focus on agency customer needs
- Bring FEMP's resources and services to the customer
- Education and options to increase customer's comfort level
- Strong motivation to succeed





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## Best Practices Overall

- Single most effective best practice — Use the services of an experienced Project Facilitator. Critical knowledge will follow.
  - PFs are the best insurance of successful projects with persistent savings.
  - FEMP PFs have “seen it all”
  - PFs guide agencies to all the resources (and best practices) available
  - PF services are free through initial proposal stage
  - PFs are supported by M&V and technology specialists
- Attend training — Super ESPC Delivery Order Workshop and M&V training
- Use FEMP guidance — Practical Guide, DO Guidelines, M&V Guidelines, others



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## Super ESPC Delivery Order Workshops

- Great way for agency personnel to gain confidence and get started — held four times per year
- AFRs are publicizing the workshop
- Customized agency workshops provided
  - Training for installations
- Taught by FEMP Project Facilitators and DOE staff





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## Educational Materials and Publications — Examples:

- Super ESPC Toolkit
- Practical Guide
- ESPC case studies
- **FEMP Focus** articles to get messages across:
  - UESCs have markups, too
  - Option A M&V can be smart, safe, and cost-effective
  - You can choose (and pay for) just the services you want with ESPCs (O&M, R&R)

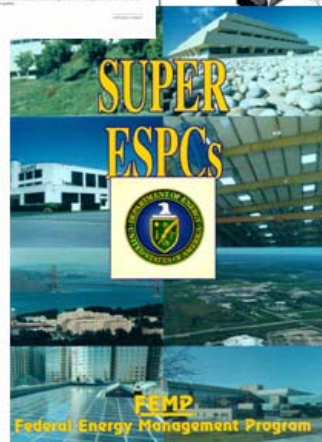


Practical Guide to  
Savings and Payments in  
Super ESPC Delivery Orders

Prepared for the  
U.S. Department of Energy  
Office of Energy Efficiency and Renewable Energy  
Federal Energy Management Program

Prepared by  
Oak Ridge National Laboratory

September 2001



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## Educational Materials and Publications — Web Site:

- Includes:
  - ESCO Center
  - FEMP Assistance
  - Contract Tools and Guidance
  - Awarded Contracts and Case Studies
  - Legislation and Regulations
  - Get Started
- [www.eere.energy.gov/femp/financing/escpc.htm](http://www.eere.energy.gov/femp/financing/escpc.htm)

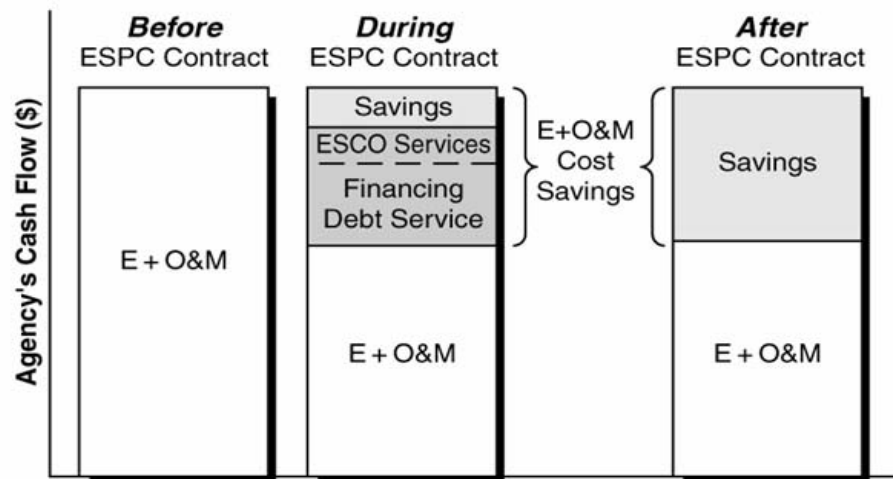






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## ESPCs are paid from savings—guaranteed—no increase in government spending occurs



E+O&M = operating budgets for energy and energy-related operations and maintenance



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## ESPCs are a tool to help agencies make better use of their current spending levels

- ESPCs stop the current spending on
  - Wasted energy
  - Maintenance of obsolete equipment
- And reallocate the same spending to
  - Buying only the energy needed to operate new, efficient equipment
  - Paying only to maintain new, efficient equipment
  - Repaying the private financing from the guaranteed cost savings



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## If you have persistent facility management problems that you cannot afford to fix, an ESPC may be your best solution.

1

If you could replace three facility management “nightmares” related to energy use or O&M, what would you replace?

2

What is the approximate cost to replace these systems?

3

Will appropriated funds be available in the next 1-2 years to solve these problems?

If the answer to Question 3 is “no,” you may be a candidate for an ESPC.



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## Past experience implementing Super ESPC projects offers three important lessons for future participants

### 1. Plan the Job



**Start with a clear plan and carry it out as consistently and expeditiously as possible.**

A day of delay is a day of lost energy savings, and poor planning is the most frequent cause of indecision and delay. FEMP offers comprehensive ESPC implementation plans.

### 2. Get Buy-In



**Get buy-in at all organizational levels, especially at the top.**

Enthusiastic participants are less likely to get bogged down in second guessing. Vesting responsibility and authority at the highest levels possible will help overcome lower level obstacles.

### 3. Think Big



**Don't “incrementalize.”**

Big projects cost as much to administer as small ones and can deliver significant economies of scale in purchase of materials and mobilization of labor. Pilot projects only demonstrate the folly of doing pilot projects.





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## But, what if... Frequently Asked Questions

?

I am concerned about trusting an ESCO?

**ANSWER:** ESCO success is tied to verified savings, so they have a powerful incentive to deliver long-term performance. ESCOs also value their partnership with the federal government and want to maintain good standing to get additional work.

?

I've already given away my lighting project?

**ANSWER:** This may limit the number of ECMs you can bundle together, but your ESCO can tell you if it is worthwhile to proceed.

?

I think of a project after the ESPC is set up? Can I do ESPCs in phases?

**ANSWER:** Yes. ESCOs will work with you to incorporate additional ECMs into the contract, although it is best to include as many as possible in the original DO to minimize administration costs.

?

Some of my buildings close, or even my entire site closes before the contract expires?

**ANSWER:** For site closures, the value of the remaining contract can be included in the property transfer price, or the contract can be terminated and a settlement negotiated within the cancellation ceiling.



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## But, what if... (con't)

?

Energy prices rise or fall during the project term?

**ANSWER:** The energy prices and escalation/deflation rates that are used to determine savings are negotiated by the agency and ESCO and specified in the DO award. Guaranteed savings and payments to the ESCO are based on that agreement rather than on actual energy prices.

?

I don't have the resources to verify savings?

**ANSWER:** A well designed ESPC minimizes M&V costs and limits the agency's role by using procedures that are simple and easy to confirm. If assistance is needed it is available from FEMP.

?

I am faced with mandated privatization of DOD utilities?

**ANSWER:** This will not be a problem if the ECMs are in buildings not being privatized. If the buildings are being privatized, the value of the remaining contract can be included in the property transfer price.

?

I have year-end money to spend?

**ANSWER:** Consider making early ESPC payments to reduce interest costs.



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## Key Benefits of Super ESPC

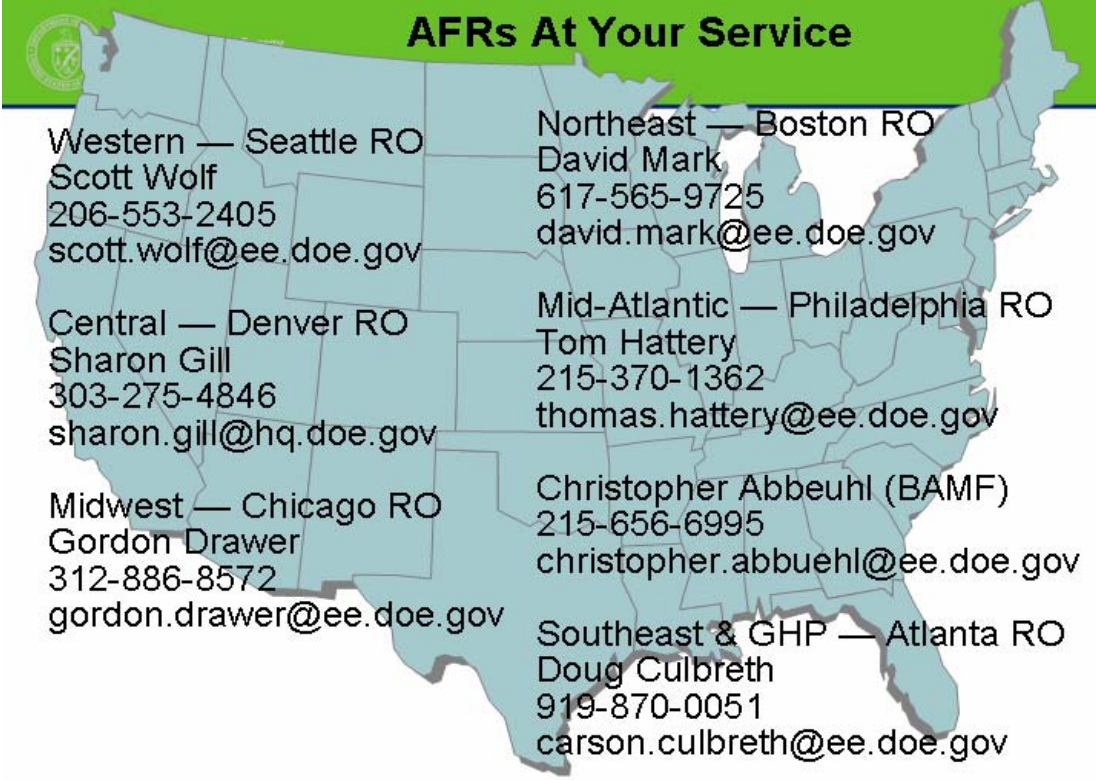
- ◆ Sites reduce their energy use/\$
- ◆ Agencies make progress toward energy reduction goals
- ◆ New equipment
- ◆ Eliminates maintenance & repair costs of aging equipment
- ◆ Can place O&M and R&R responsibilities for new equipment with ESCO
- ◆ Improves the environment
- ◆ Stimulates the economy
- ◆ Saves taxpayer dollars
- ◆ Qualified ESCOs are under contract and easily accessed
- ◆ All agencies may participate
- ◆ DOE FEMP support — whatever is needed is available



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## FEMP Services

- One-stop shop: project facilitators, technical & procurement assistance
- Offers a menu of services
  - Contractor-identified project ~ \$30K estimate
    - Free through initial proposal review
  - Government-identified project ~ \$50K estimate
  - Additional support available if needed
    - Technical assistance is available to fulfill any of the government roles & responsibilities within ESPC
    - Technology and M&V specialists



**AFRs At Your Service**

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**Building Energy Performance Drives Increased Energy & Operational Efficiency, Reduced Emissions & Improved Infrastructure - Putting a value on the improvement**

Presenter: Venkat Kumar, Manager, Technical Services, Johnson Controls

**Industry Workshop October 7 - 8, 2003**

**Building Energy Performance Improvement  
Through  
Advance Technologies, Smart Organization and Financing  
- Industry Workshop**

**Building Energy Performance  
drives  
Increased Energy & Operational Efficiency,  
Reduced Emissions & Improved Infrastructure  
- Putting a value on the improvement**

Venkat Kumar  
Manager, Technical Services  
Johnson Controls

**JOHNSON  
CONTROLS**

**Government  
SYSTEMS AND SERVICES**



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## **Building Energy Performance Improvement (BEPI)**

- How long does it take to bring about B E P I?
  - How does one achieve B E P I?
  - What are the ways to achieve B E P I?
- What are benefits of using the ESPC approach?
  - What is the heart of the ESPC solution?
- How can we put a value on the improvement?
  - What should the tool-kit address?

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## **How long does it take to bring about Building Energy Performance Improvement?**

- It takes 3 to 4 years for the idea in a facility manager's mind to become actual improvements in Building Energy Performance
  - Funding Request for Appropriation / Pursue ESPC - FY 1
  - Funding Request Obligation / ESPC Development - FY 2
  - Project Develop & Bid / ESPC Negotiation & D.O. Award - FY 2
  - Project / ESPC Implementation - FY 3
  - Project / ESPC Performance Period - FY 4
  - Building Energy Performance Improvement Recognized - FY 4

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**How does one achieve significant improvement in Building Performance ?**

- By planning the improvement - the development, contracting, implementation and ongoing services to sustain the improvement
  - Develop building performance improvement measures
  - Determine baseline performance before installing measures
  - Propose the expected performance from measures
  - Determine method to verify actual performance of measures
  - Determine O&M, R&R requirements for the measures so they can continue to perform year after year
- Install the improvement measures
  - Test, Startup and Commission the measures
- Measure Performance Periodically
- Perform O&M, R&R as recommended by manufacturer

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**What are the benefits of using the ESPC approach?**

- ESPC can provide comprehensive building performance solutions
- financially viable solutions are written up into multi-year contracts which delineate obligations & risks for the ESCO and government
- ESCO's obligations continue after installation of improvements, through end of multi-year contract term
- solutions result in improved energy & operational efficiency, infrastructure upgrades, increased productivity / mission improvement, comfort, quality of life
- verified \$ savings pay for the investment related to the implementation of the solution
- verified \$ savings pay for performance period services - Operation, Maintenance, Repair, Replacement, Measurement & Verification



*Industry Workshop October 7 - 8, 2003***What is the heart of the ESPC solution?**

- The matrix which connects three key elements needs to be **detailed and yet simple enough** for the customer / owner to understand, so there is adequate understanding of and buy-in of the solution
  - baseline(s) for the affected system(s)
  - the energy/performance improvement modeling method(s)
  - measurement & verification methods to determine actual energy / performance improvement

*Industry Workshop October 7 - 8, 2003***How can we put a value on the improvement?**

- The more improvements which can be acceptably quantified, the larger the savings stream which can fund building performance improvements -
  - energy improvements - efficiency, energy units, cost savings
  - O,M&R improvements - efficiency, cost savings
  - one time cost savings
  - reduction in emissions
  - increased productivity / mission improvements
  - improved comfort / quality of life

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**What could the “tool-kit” address?**

- ways to reduce development time so B E P I achieved sooner
- provide flexible guidance on baseline development methods, energy/performance modeling methods, protocols for measurement & verification
  - so that the solution can be tailored for the technologies involved and for the expertise available with the owner's technical staff (Appropriate Technology Exchange)
- develop methods to quantify O,M&R material and labor savings since these savings will add to the annual savings which can pay for more improvements
- develop methods to quantify emissions reductions so the agencies / sites realize the monetary benefits of their effort

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**Questions and Answers ?**